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RECENTLY PUBLISHED RESEARCH OF THE DNEPROPETROVSK METALLURGICAL INSTITUTE, USSR

"Kinetics of the Decomposition of Tetrafluoroborates in Aqueous Solutions," I. G. Ryss, M. M. Slutskaya, Lab Gen Chem, Dnepropetrovsk Metal Inst imeni Stalin, 12 pp

"Zhur Fiz Khim" Vol XXI, No 5, May 1947

Discusses, with detailed tables, illustrations and formulas, the kinetics of decomposition with result that the constant of the rate $k' = 0.4343K$ at temperature of 20 to 70-80°. Rate of reaction was found to increase with rise in temperature. (18T100)

"Crystallization Equilibrium of Solutions of Stannous Chloride," I. G. Ryss, E. Ya. Turkman, Dnepropetrovsk Metal Inst

"Zhur Priklad Khim" Vol 19, 1947 pp 958-65

In the system $SnCl_2$-H_2O-HCl, equilibrium is attained from both sides in 2-3 hours at 5°. From 0 to 25°, with up to 10% HCl, the solid phase is $SnCl_2.2H_2O$. Isotherms at those temperatures, with % $SnCl_2.2H_2O$ in solution plotted against % HCl, show a minimum around 5.5-6% HCl, the flatter the nigher the temperature. Cryometric determinations without HCl (other than that due to hydrolysis of $SnCl_2$) gave: from a 34.7% $SnCl_2$ solution, the crystallization

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temperature of ice is -6.8°; $SnCl_2$ content of the solution in equilibrium with the eutectic, 37.9%. From 36.8 and 37.3% $SnCl_2$, ice crystallizes at -6.25 and -6.45°, respectively; eutectic arrest at -6.8° Slightly moist $SnCl_2.2H_2O$ showed on heating a temperature arrest at 41.4°; it could not be decided whether this corresponds to complete melting, nor could a second eutectic $SnCl_2.2H_2O$-$SnCl_2$ be established; it appears that $SnCl_2.2H_2O$ melts incongruently but with a composition very close to it.

"Hydrolytic Equilibria in Solutions of Sodium Fluosilicate at 11°," I. G. Ryss, Dnepropetrovsk Metal Inst

"Zhur Obshch Khim" Vol 16, 1946, pp 331-40

The degree of hydrolysis of Na_2SiF_6 at 11° at concentrations 0.02 M to 0.00048 M was determined. The following equilibrium constants were calculated: $SiF_6^{--} \rightleftharpoons SiF_4 + 2F^-$, $K_1 = 0.65 \times 10^{-6}$; $SiF_4 + 2H_2O \rightleftharpoons SiO_2 + 4HF$, $K_2 = 1.04 \times 10^{-8}$; $SiF_6^{--} + 2H_2O \rightleftharpoons SiO_2 + 4H^+ + 6F^-$, $K_3 = 5.4 \times 10^{-27}$. Generally speaking, the solutions of the hexafluoride reach hydrolytic equilibrium rapidly and further changes occur only very slowly.

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